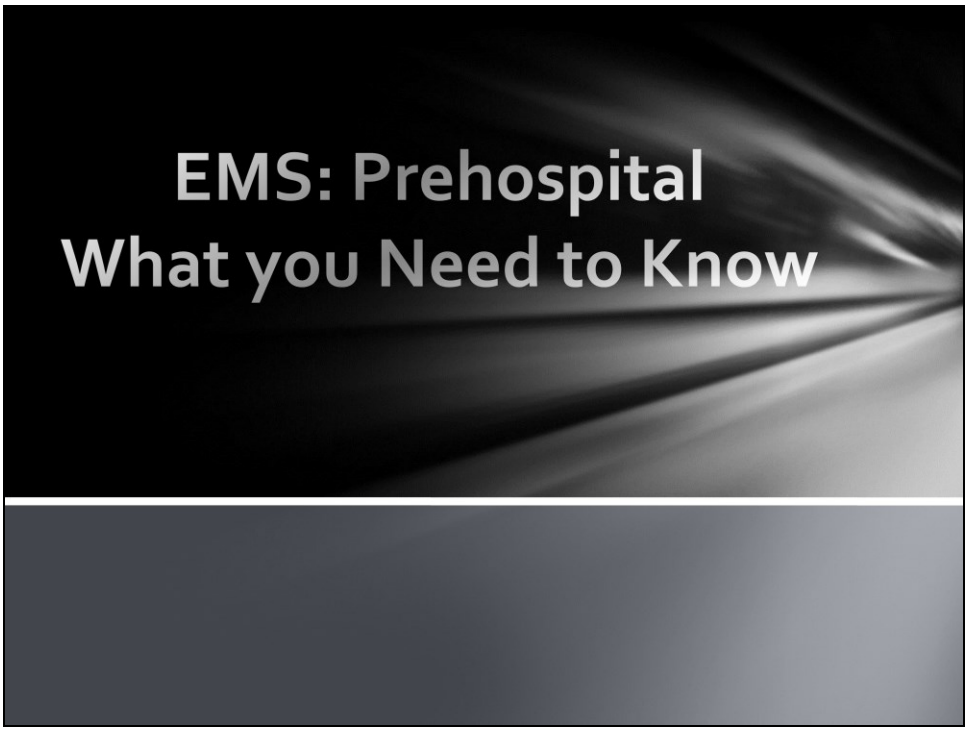


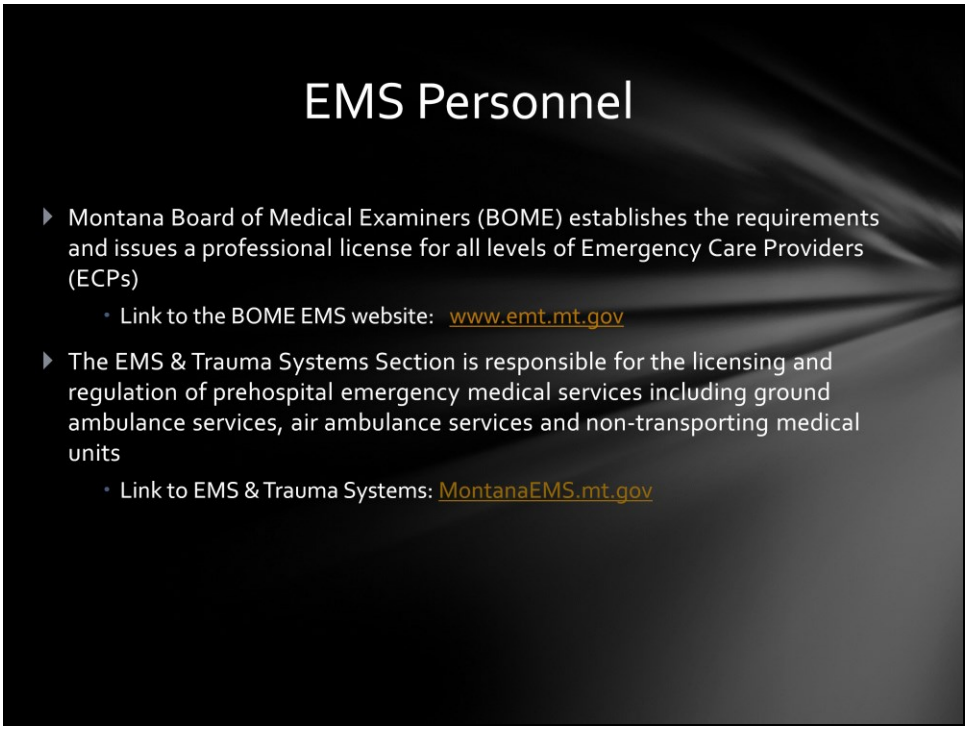
- Purpose: To provide the an understanding of EMS systems.

Key Message

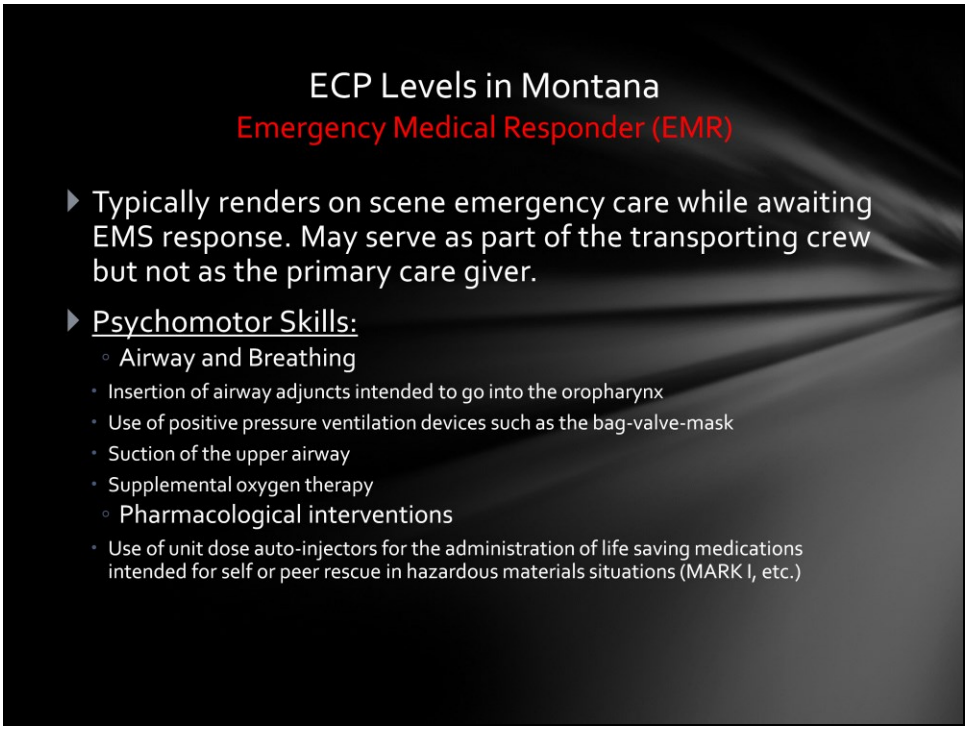
For the best possible outcomes of trauma patients, good care must start from the beginning making prehospital care an important part of the TEAM concept

Understanding your EMS system is imperative as you work with them in receipt &/or transfer of patients

EMS levels of care are complicated and the sending facility must never pressure an EMS provider to transport a patient who may require care outside the scope of practice of that EMT



- Local medical direction establishes the utilization of any and all psychomotor skills by any Montana licensed provider.
- While the individual licensure and Montana state wide protocols establish the maximum allowable skill set for any licensed provider, the local medical director may limit (not expand) the scope of practice of any specific licensed provider or service as they feel comfortable.
- Therefore this descriptive list identifies the maximum allowable scope of practice for any given level of ECP allowable by law and my not reflect the actual functioning scope of any given provider or service.



- Previously called First Responder

ECP Levels in Montana

Emergency Medical Responder (EMR)

continued…

Psychomotor Skills continued:

- Medical/Cardiac Care
  - Use of an automated external defibrillator
- Trauma Care
  - Manual stabilization of suspected cervical spine injuries
  - Manual stabilization of extremity fractures
  - Bleeding control
  - Emergency moves
- Specialties (endorsements)
  - MONITORING: allows these individuals to operate a pulse oximeter

ECP Levels in Montana

Emergency Medical Technician (EMT)

- The major difference between the EMR and the EMT is the knowledge and skills necessary to provide medical transport of emergency patients
- Psychomotor Skills in addition to EMR:
  - Airway and Breathing
    - Insertion of airway adjuncts intended to go into the oropharynx or nasopharynx
    - Use of positive pressure ventilation devices such as manually triggered ventilators and automatic transport ventilators
  - Pharmacological interventions
    - Assist patients in taking their own prescribed medications
    - Administration of the following over-the-counter medications with appropriate medical oversight:
      - Oral glucose for suspected hypoglycemia
      - Aspirin for chest pain of suspected ischemic origin

ECP Levels in Montana

Emergency Medical Technician (EMT)

continued…

- Psychomotor Skills continued:
  - Trauma Care
    - Application and inflation of the pneumatic anti-shock garment (PASG) for fracture stabilization
  - Specialties (endorsements)
    - MEDICATIONS: Allows individuals to carry and administer:

• Glucagon	• Oral Glucose
• Aspirin	• Epinephrine (auto injector or 1 ml vial)
• Flu Vaccine	• Morphine (auto Injector 5 mg/10mg)
• Benadryl (PO)	• Solu Cortef, Solu-Medrol or Decadron (IM/IV/IO)
• Narcan	• Nitroglycerin (tablet or spray)
	• Albuterol, Isoetharine, Metaproteranol, etc. (inhaler & nebulizer)

ECP Levels in Montana

Emergency Medical Technician (EMT)

continued…

- Specialties (endorsements) continued
  - IV/IO INITIATION: Allows individuals to initiate and maintain a peripheral IV/IO site and infuse "clear" fluids.
  - IV/IO MAINTENANCE: Allows individuals to only maintain a previously started peripheral IV/IO site and monitor "clear" fluids.
  - AIRWAY: Allows individuals to utilize a KING airway

ECP Levels in Montana

Advanced Emergency Medical Technician (AEMT)

The major difference between the AEMT and the EMT is the ability to perform limited advanced skills and provide pharmacological interventions to emergency patients

Psychomotor Skills in addition to EMR & EMT:

- Airway and Breathing
  - Insertion of airways that are NOT intended to be placed into the trachea
  - Tracheobronchial suctioning of an already intubated patient

ECP Levels in Montana

Advanced Emergency Medical Technician (AEMT)

continued…

Psychomotor Skills in addition to EMR & EMT continued:

- Pharmacological interventions
  - Establish and maintain peripheral intravenous access
  - Establish and maintain intraosseous access in a pediatric patient
  - Administer (non-medicated) intravenous fluid therapy
  - Administer sublingual nitroglycerine to a patient experiencing chest pain of suspected ischemic origin
  - Administer subcutaneous or intramuscular epinephrine to a patient in anaphylaxis
  - Administer glucagon to a hypoglycemic patient
  - Administer intravenous D50 to a hypoglycemic patient
  - Administer inhaled beta agonists to a patient experiencing difficulty breathing and wheezing
  - Administer a narcotic antagonist to a patient suspected of narcotic overdose
  - Administer nitrous oxide for pain relief

ECP Levels in Montana

Advanced Emergency Medical Technician (AEMT)

continued…

- Specialties (endorsements)
  - MEDICATIONS Allows individuals to carry and administer:
- Benadryl (PO)
- Morphine (auto Injector 5mg/10mg)

  - I-99: Allows individuals who were previously licensed at the Intermediate-99 level to retain their previous scope of practice. Simply put, this individual may initiate first line cardiac medications for resuscitation purposes. Refer to Montana Statewide Protocols. There are very few of these endorsed individuals in Montana.

ECP Levels in Montana
Paramedic

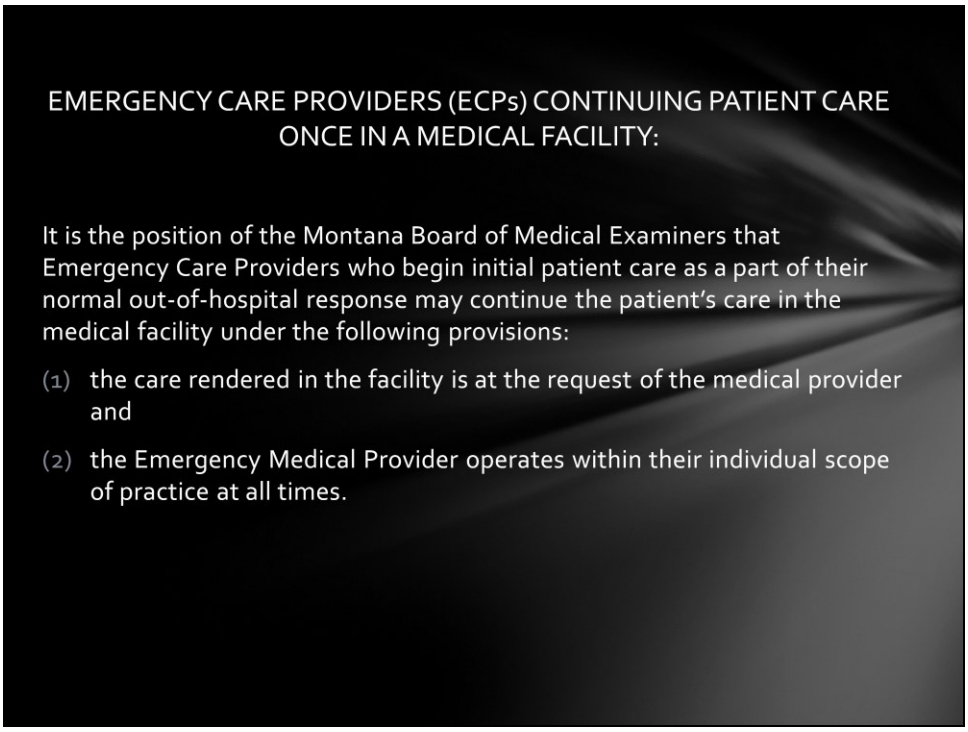
- The major difference between the Paramedic and the Advanced Emergency Medical Technician is the ability to perform a broader range of advanced skills.
- Psychomotor Skills in addition to EMR, EMT & AEMT:
  - Airway and Breathing
    - Perform endotracheal intubation
    - Perform percutaneous cricothyrotomy
    - Decompress the pleural space
    - Perform gastric decompression

ECP Levels in Montana

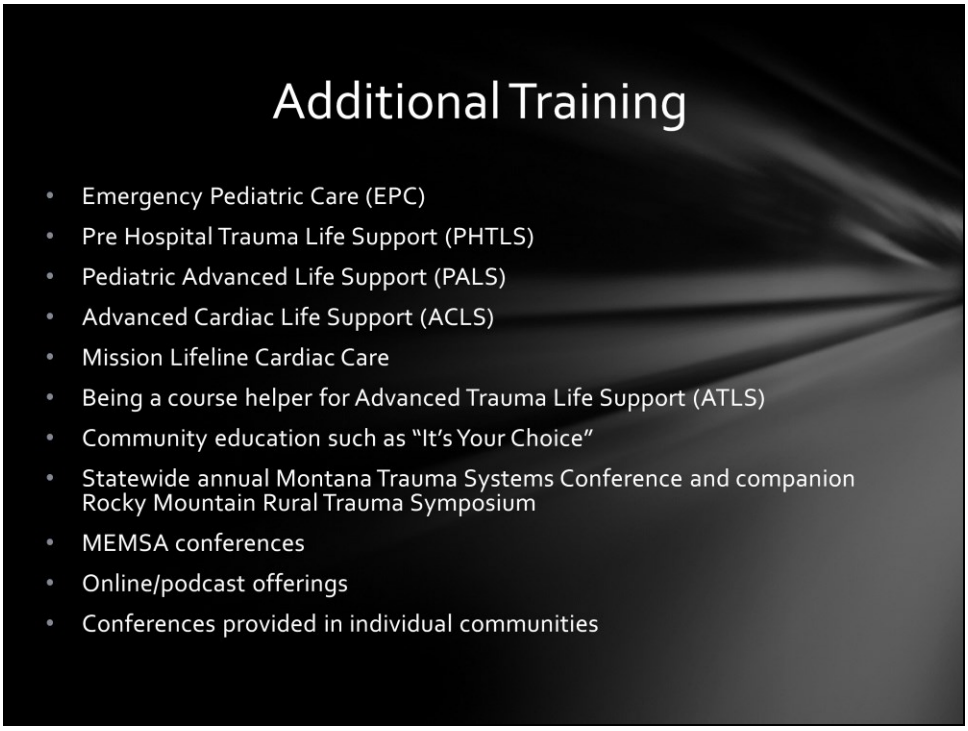
Paramedic

continued…

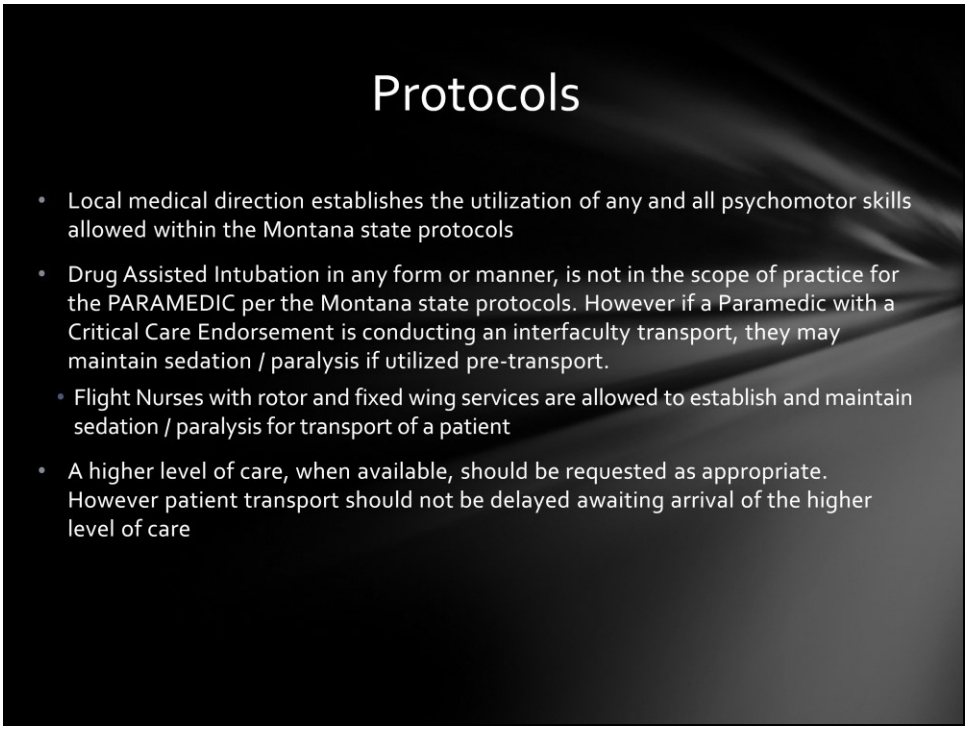
- Psychomotor Skills in addition to EMR, EMT & AEMT continued:
  - Pharmacological interventions
    - Insert an intraosseous cannula
    - Enteral and parenteral administration of approved prescription medications
    - Access indwelling catheters and implanted central IV ports for fluid and medication administration
    - Administer medications by IV infusion
    - Maintain an infusion of blood or blood products
  - Medical/Cardiac Care
    - Perform cardioversion, manual defibrillation, and transcutaneous pacing
  - Specialties (endorsements)
    - CRITICIAL CARE: Allows individuals to effectively and safely manage critically ill or injured patients during transfer between facilities under the oversight of a physician. The skills identified in this endorsement and the approved Critical Care protocols are intended for interfacility transfers, not 911 calls. Specific protocols exist and can be downloaded from the web site www.emt.mt.gov



- An ECP's practice is, by statute, limited to the out-of-hospital scene (Section 50-6-201, Montana Code Annotated).
- Some Montana hospitals, however, recognizing the skills and training of the certified ECP, have begun to employ ECPs in the hospital emergency room and other in-hospital settings.
- Typically, the facility lists ECP-licensure as a criterion for employment, and then trains the person in such additional skills and techniques as may be necessary to perform the in-hospital job, e.g., phlebotomy.
- The facility may call the employee an "emergency department technician" or "emergency room assistant."
- Such employment practices are cost-effective for the facilities because they can send the employee out to the scene of an accident on an emergency call as a fully-certified ECP, and, when the run is completed, can use the same employee for routine in-hospital tasks instead of having to employ an additional unlicensed person for those tasks.



- EMS & Trauma Systems often offers courses in EPC and PHTLS for EMS communities.
- Contact them for more information on what is currently available
- Community education such as "It's Your Choice" and distracted driving classes are excellent ways to help provide trauma prevention



1. The Board authorizes the medical director to use the Board approved protocols in their entirety or may determine to limit the service or individual EMT providers function/practice where appropriate and in accordance with provider's abilities or needs of the community they serve. **However**, the local medical director may not significantly alter or expand approved Board protocols without first seeking Board of Medical Examiners approval.
2. The protocols are written more as a "what to do" vs "how to do it", so there may be some difference from system to system on how care is provided for specific issues depending on the specific medical director.

Montana Field Trauma Decision Scheme/Trauma Team Activation Criteria

EMS & Facilities should utilize these criteria to identify patients needing trauma team activation

Goals for all phases of care include early identification, communications with EMS/medical control/facilities and notification to enhance effectiveness

While these criteria are presented in sequential fashion, using all applicable criteria to identify significantly injured patients is advised

Trauma Patients with severe injuries should be transported preferentially to the highest level of care within the trauma system geographically available. Steps 1 & 2 attempt to identify these patients.

- **WHEN IN DOUBT, ACTIVATE/CONTACT MEDICAL CONTROL**

***Activation Steps continued on next 4 slides

Montana Field Trauma Decision Scheme/Trauma Team Activation Criteria

- **Step 1 Physiologic Criteria**

Best predictor of severe injury

- In life-threatening situations (airway compromise, unstable cardiac rhythm)
  - the patient will be transported to the closest facility
- Obtain Vital signs and Level of Consciousness ASAP
  - Systolic BP < 90
  - Glasgow Coma Scale < 13, decreased responsiveness
- Severe respiratory distress or need for ventilatory support, Respiratory Rate < 10 & > 29, < 20/infant
- Pediatric; poor skin perfusion (color, cool extremities, weak distal pulses)

  Heart rate;
  - Child < 1yr: < 60/min or >130/min
  - Child 1-8yr: < 80/min or >120/min
- ERP/EMS discretion

- **If "Yes" to any of these, Activate/Contact Medical Control**
- **If "No" go to Step 2, Assess anatomy of injury**

Montana Field Trauma Decision Scheme/Trauma Team Activation Criteria

- Step 2. Anatomic Criteria

May have "normal" VS & GCS but still have sustained severe injuries

- All penetrating injuries of head, neck, torso and extremities proximal to knee or elbow
- Chest wall instability or deformity (e.g., Flail Chest)
- Paralysis
- Pelvic Fractures/instability
- Open or depressed skull fractures
- 2 or more proximal long-bone fractures
- Crushed, de-gloved , mangled, amputated or pulseless extremity
- Major Burns
- Hypothermia

❖ **If "Yes" to any of these, Activate/Contact Medical Control**

❖ **If "No" go to Step 3, Assess mechanism of injury**

Montana Field Trauma Decision Scheme/Trauma Team Activation Criteria

- Step 3. Mechanism of Injury Criteria

Do not always produce severe injury, but certainly CAN, so use to CONSIDER activation

- Motor Vehicle Crashes
  - Ejection
  - Death of occupant in same vehicle
  - Intrusion, including roof: > 12 inches, occupant compartment
  - Extrication time > 20 minutes
- Auto vs pedestrian/bicyclist thrown, run over or significant impact
- Falls : Adults > 20ft
  - Children > 10ft or 2-3 X height of child
- Horse/Animal rollover/ejection
- Motorcycle/Snowmobile/ATV crash > 20MPH

❖ **Contact Medical Control, advise of mechanism of injury for early consideration of activation**

❖ **If "No" go to Step 4, assess special patient or system considerations**

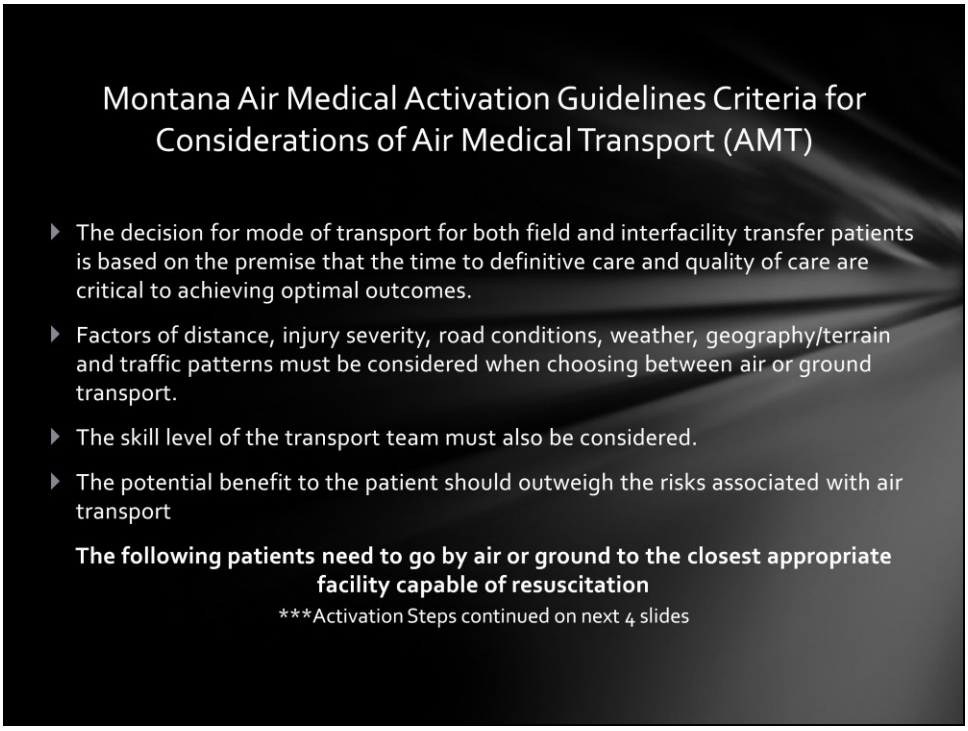
Montana Field Trauma Decision Scheme/Trauma Team Activation Criteria

- Step 4. Special Considerations or Co-Morbidities:

May not meet physiologic, anatomic or mechanism criteria, but underlying issues create higher RISK for severe injury

- Older Adult; Risk of injury/death increases after age >55 yr
  - SBP < 110 MAY represent shock after age 65 yr
  - Low impact mechanisms (e.g. ground level falls) MAY result in severe injury
- Child age < 15 yr
- Anticoagulation/Bleeding disorders (Coumadin/Warfarin, Plavix, Pradaxa, etc.)
  - Patients with head injury are at high risk for rapid deterioration
- Time Sensitive Extremity Injury (Open Fx, major joint dislocation/Fx w/neurovascular compromise, etc.)
- Pregnancy > 20 weeks
- Multiple Patient situations
- EMS/Provider Judgement

❖ **Contact Medical Control, advise of co-morbidities for consideration of activation**



- Air medical transport typically is a consideration for scene evacuation of critically injured trauma victims or for the inter-facility transfer of high-acuity patients to tertiary hospitals.
- The appropriate activation and effective utilization of air medical transport services is an important consideration for emergency care systems.
- The purpose of the Montana Air Medical Activation Guidelines is to provide guidance for development of standardized approaches for ground emergency medical service providers to decide whether or not to request a scene response by an air medical transport provider.
- As there cannot be a single document developed to meet the needs for every situation, the Montana air activation guidance is provided as the foundation for local decisions about implementation of air activation criteria.
- In certain scenarios, the patient cannot be fully stabilized at a local facility or there are no local facilities in close proximity to the scene.
- Such patients should be considered a candidate for air medical transport to an appropriate facility.
- The specific criteria listed in the guidelines are not intended to be a comprehensive listing, but rather an indication of the decisions for whether or not air medical response may be appropriate.

Montana Air Medical Activation Guidelines Criteria for Considerations of Air Medical Transport (AMT)

- **General Criteria**
  - Unable to maintain patent airway or need for ventilatory support
  - Need for advanced airway
  - Respiratory Failure with inability to control breathing and/or intubated
  - Unable to control bleeding
  - BP <90 systolic at any time in adult patient or age-specific for children
  - Paralysis
  - Major burns to any area of body
  - Patients in remote locations inaccessible in a timely manner by ground EMS
  - Mass/Multiple Casualty incidents with potential to overwhelm current resource capabilities
  - Depletion of EMS coverage to area if ground transport was to be utilized
  - Request by trained Emergency responders

Montana Air Medical Activation Guidelines Criteria for Considerations of Air Medical Transport (AMT) continued…

Head/Face/Neck

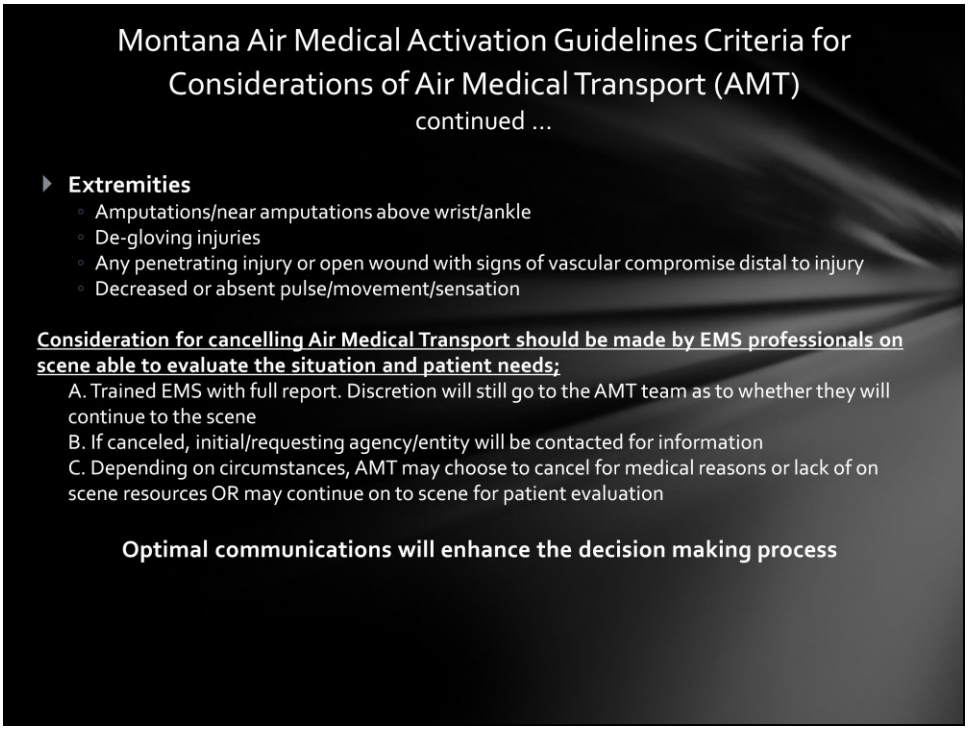
- GCS <9
- Unresponsive on AVPU scale
- Pediatrics; unresponsive to Voice on AVPU
- Penetrating or crush injury to head or face
- Neurologic deficit with numbness, tingling, or loss of function to one side of body
- Penetrating or crush injury to neck

Abdomen/Pelvis

- Penetrating or crush injury to abdomen/pelvis
- Rigid abdomen
- Pediatrics; bruising of abdomen
- Increasing abdominal girth
- Unstable pelvic fracture
- Major burns to groin

Montana Air Medical Activation Guidelines Criteria for Considerations of Air Medical Transport (AMT) continued…

- **Chest**
  - Respiratory Distress
  - Apnea; any patient
  - RR <10 or >35
    - Infants (less than 1 year old) - RR <20
    - Pediatrics - RR <10 or >60
  - Cyanosis
  - Hypoxia with oxygen saturations <88 percent with oxygen therapy
  - Chest Pain and/or ST Elevation on EKG
  - Penetrating or crush injury to chest
    - Sucking chest wound
    - Signs of Tension Pneumothorax
    - Hypotension
    - One sided decrease in breath sounds
    - Distended neck veins
    - Subcutaneous emphysema
  - Signs of Flail Chest
    - Paradoxical movements of chest wall
    - Extreme pain on inspiration
  - Pediatric specific
    - Bradycardia
    - Respiratory Distress
    - Agitation
    - Decreased Level of Consciousness
    - GFR – Grunting – Flaring – Retracting



- **General Indications for Air Medical Transport**
  - ❖ There are numerous scenarios when it may be beneficial to activate air medical transport. However, several factors should be considered when evaluating the need for activating air medical transport. As outlined in the guidelines:
  - ❖ The decision for mode of transport for both field and interfacility transfer patients is based on the premise that the time to definitive care and quality of care are critical to achieving optimal outcomes
  - ❖ Factors of distance, injury severity, road conditions, weather and traffic patterns must be considered when choosing between air or ground transport. The skill level of the transport team must also be considered
- **The potential benefit to the patient should outweigh the risks associated with air transport**
  - ❖ Additional considerations include:
  - ❖ Does the patient require critical care during response/transport, which is not available with ground transport options?
  - ❖ Is the patient located in an area that is inaccessible to ground transport?
  - ❖ What are the current and predicted weather conditions along the response and transport route?

- ❖ Would use of local ground transport leave the local area without adequate emergency medical services coverage?
- ❖ Does the patient meet "Trauma Team Activation" criteria as set by local facilities or Montana Field Decision/Trauma Team Activation Criteria?
- ❖ Is the patient medically unstable or critically ill/injured and time to definitive care by ground exceeds air medical transport time?
- ❖ Is the scene greater than 30 minutes from the hospital or is ground ambulance response not available or will be delayed?
- ❖ Do the patient's needs exceed local EMS or health care facility capabilities?
- ❖ What are the capabilities of available transport modalities and what level of care does the patient require?
- ❖ Could the critically ill or injured patient compromise the capabilities of the local EMS service or hospital?
- ❖ Does the patient require specialized medical treatment not available at a local facility - (cardiac catheterization, stroke center, trauma care, etc)?
- ❖ Will the number of patients overwhelm local EMS and/or hospital resources?

Guidance:

- ❖ Patients requiring critical interventions should be provided those interventions in the most expeditious manner possible.
- ❖ Patients who are stable should be transported in a manner that best addresses the needs of the patient and the system.
- ❖ Patients with critical injuries or illnesses resulting in unstable vital signs may require transport by the quickest available modality, with a transport team that has the appropriate level of care capabilities, or to a medical facility capable of providing definitive care.
- ❖ Patients with critical injuries or illnesses should be transported by a team that can provide intra-transport critical care services.
- ❖ Patients who require high-level care during transport, but do not have time-critical illness or injury, may be candidates for ground critical care transport if such service is available and logistically feasible.

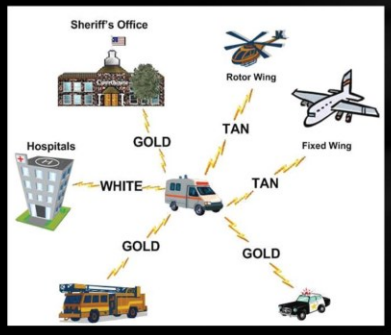
Implementation

- ❖ A coalition of the local healthcare facility staff and medical providers, each EMS provider, air medical services and all first responder organizations (fire departments, law enforcement agencies, etc.) should work together to develop air medical transport activation criteria.

- ❖ Air medical activation should be initiated by persons with training in the pre-hospital care of injured patients and knowledge of available air medical transport services/capabilities. In most situations, activation should be initiated by the local EMS agency, but trained first responders can also provide early activation in some situations. Cancellation of air medical response should only be implemented by EMS.
- ❖ Helicopter dispatch can be implemented simultaneously with the ground unit or during or at some point after the 911 call when indications of air medical transport become evident.
- ❖ Helicopter to scene response should take less time (>20 minutes time savings) than it takes to travel by ground to the closest appropriate facility. If this is not the case, strong consideration should be given to activating the helicopter from the scene and meeting at the local hospital. **Decisions to stage at the scene or enroute and wait for air medical rendezvous should be made in conjunction with local medical control**.
- ❖ Access to air medical transport services should assure prompt dispatch of a helicopter when appropriate while discouraging dispatch when it's not necessary or unsafe.

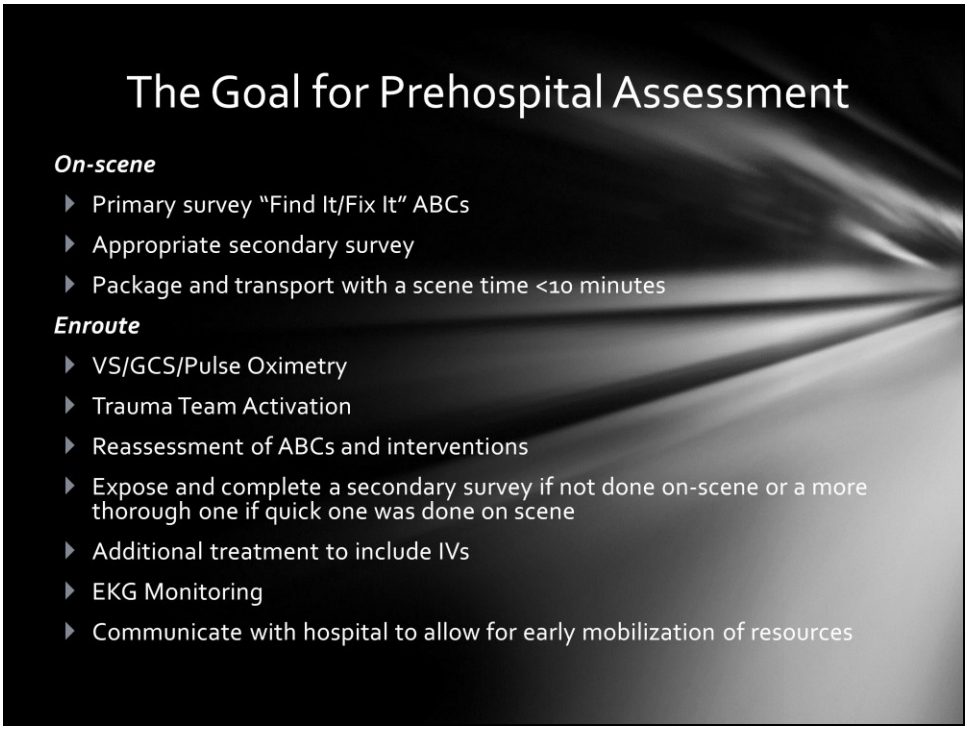
EMS Communication

- Communication with other responding agencies
- Requesting additional resources, higher level of care or rotor wing / fixed wing service
- Early notification to the receiving facility



Frequency (MHz)	Montana Name	National Designation	Usage	Restrictions/ Notes
155.2800	**WHITE**	None	Hospital-to-Ambulance and Hospital-to-Hospital Communications	
155.3400	**TAN**	VMED28	**Primary Use**: State Air-to-Ground Coordination **Secondary Uses:** EMS communications and medical staging at an incident scene.	10-Watt Airborne Limit restricted to under 5280 feet
155.3250	**GRAY**	None	**Primary Use**: Central Region Dispatch & Paging **Secondary Use:** On-scene incident management per SOP *(Treatment Group)*	Not to be used within 75 miles of Fort MacLeod, Alberta per FCC license

- Early communication with the hospital is important, especially if their resources must be called in, a trauma activation is occurring or if a flight team be mobilized



1. **On-scene,** limited to what is necessary
    - ❖ Primary includes the ABCs with a "Find it, Fix it" approach. If you cannot fix it you MUST transport immediately. If you can fix, then expose and conduct a very quick, appropriate secondary and then packaging the patient for transport

2. Enroute, make sure to reassess the ABCs and any treatments performed (ETT, bleeding control, treating for shock by keeping them warm) to ensure that they are still working
    - ❖ Early notification to hospital for Trauma Team Activation if they meet criteria
    - ❖ Vital signs including pulse oximetry
    - ❖ If able and time allows, establish IVs appropriate for the patient
    - ❖ If time allows, then a more thorough head-to-toe evaluation of patient with time to completely expose if you were not able to on scene
    - ❖ Notify the hospital with an update and more thorough report
    - ❖ Remember that trauma patients change quickly so continual reassessment of the ABCs may be the only thing you can do enroute!

The Goal for Prehospital Treatment

BLS & ALS On-scene

- Spinal Immobilization
- Open & Maintain Airway
- Oxygenation &Ventilation
- Chest Injury Management
- Bleeding Control
- Shock Treatment
- Prevent hypothermia/warm

BLS & ALS Enroute

- Reassessment of Interventions
- Splinting (if time allows)
- Any Secondary Treatment (if time allows)

Additional ALS Skills that may be performed

- Advanced Airway
  - Intubation
  - Rescue airways
- Needle Decompression
- Bilateral Large Bore IV access *ENROUTE*

EMS Radio/Phone Report

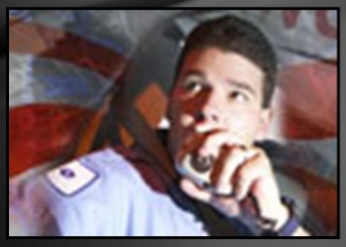
Should be simple, pertinent and concise:

M = Mechanism of injury

I = Injuries suspected

V = Vital signs, GCS

T = Treatment(s) started



- Radio reports MUST be concise
- Reasons for brief reports include;
  - ❖ ED staff receiving call often busy w/multiple priorities
  - ❖ Radio communications often “spotty” & break up easily
- ED staff needs to know enough to make triage decisions;
  - ❖ Activate the Trauma Team?
  - ❖ Free-up or call in staff, resources & diagnostics?
  - ❖ Which ED space to use, need to move current patients?

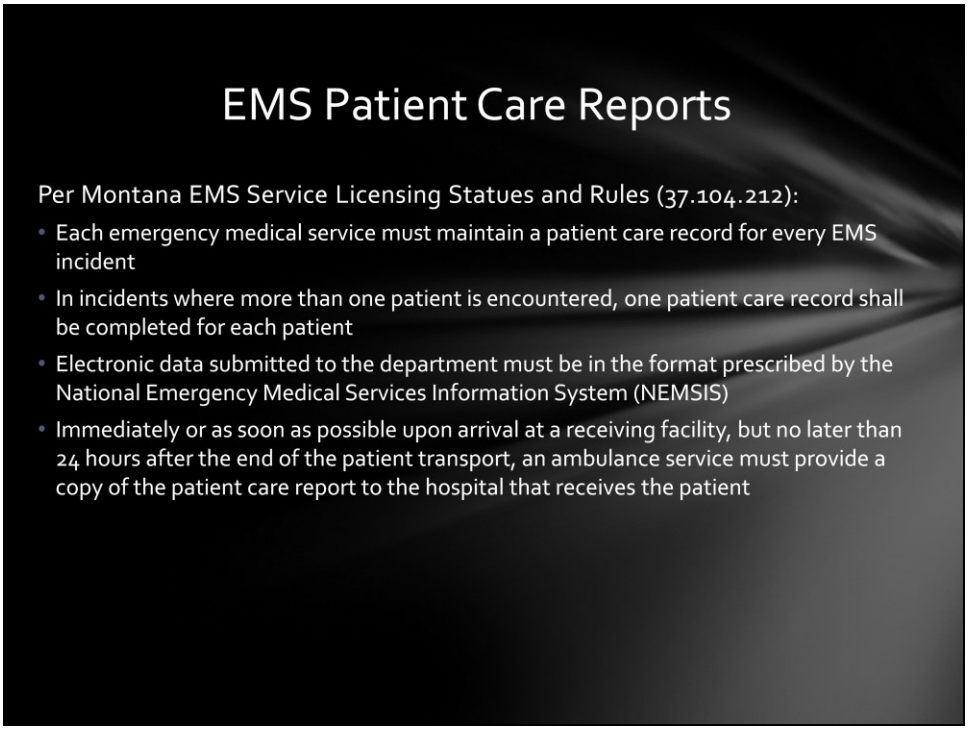
Delivering a Patient to the ED

Report at the bedside should be quick & pertinent to include

- MIVT
- Any changes in patient after treatment
- PMHx
- Allergies
- Medications

EMS may provide assistance at the direction of the hospital personnel

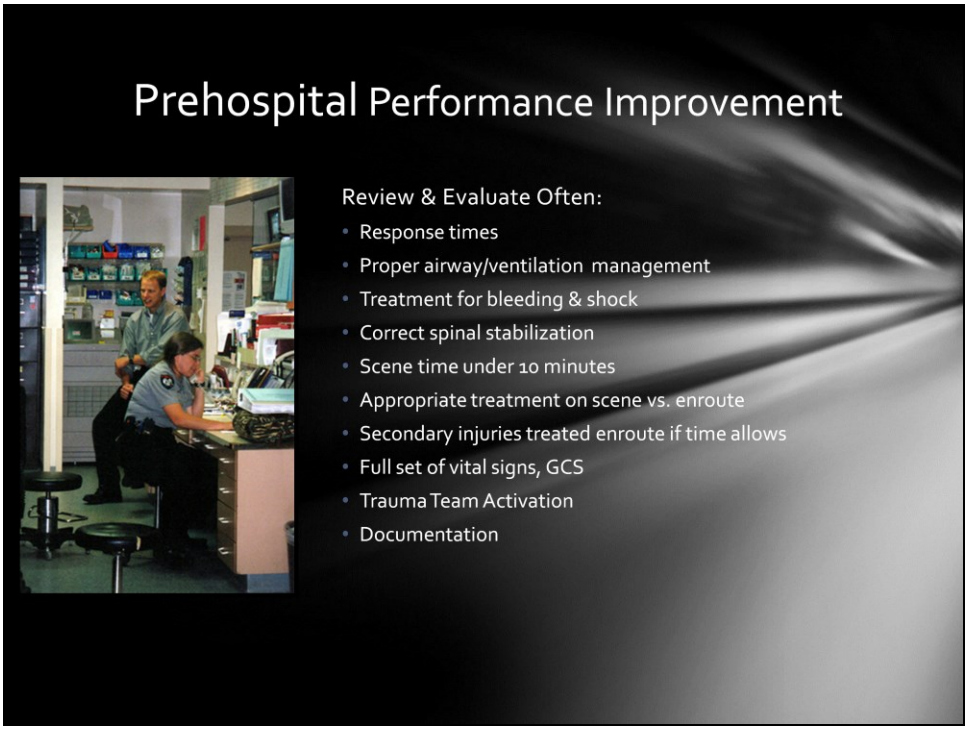
An EMS patient care report should be completed and a copy left with the ED, before leaving if possible



The complete Rule can be found on the EMS & Trauma Systems Laws & Rules page.

Not only is it a rule to provide documentation, always remember:

- It provides an important continuum of care – although EMS gives face to face reports to the hospital on arrival, much of the information we have is not always heard correctly or written down.
- EMS sees things, such as mechanism of injury and how the patient was before any treatment was rendered. This information is very valuable to those who will continue caring for the patient
- It is protection for the EMT who may someday be questioned about care provided…… IF IT WASN'T DOCUMENTED, IT DIDN'T HAPPEN



1. EMS has always been interested in improving the care that they provide, but haven't necessarily had a method to document the improvements that have been made.
2. Prehospital Performance Improvement is best done as a collaboration between prehospital and hospital personnel.
3. Every service should monitor quality
4. Don't only evaluate big cases for which you know there are problems;
    - ❖ Evaluate entire categories of calls (ALS, all Code 3, etc.)
    - ❖ Look for problems you don't already know about with the goal of finding system issues <u>before a patient suffers</u>

5. IT'S NOT ABOUT ASSIGNING BLAME; IT'S ABOUT MAKING IT BETTER FOR THE NEXT PATIENT!

6. Turn in trip sheet ASAP-needed for ongoing care.